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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/869.987	08/22/2001	Richard A. Demmin	JHT-0002	4456

7590

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EXAMINER

ARNOLD JR, JAMES

ART UNIT

PAPER NUMBER

1764

9

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/869,987

Applicant(s)

DEMMIN ET AL.

Examiner

James Arnold, Jr.

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Response to Amendment*

The obviousness-type double patenting rejections described in paper no. 6 have been withdrawn in view of the Terminal Disclaimers filed on April 9, 2003. The Examiner acknowledges the receipt of the required Abstract and the Correction of Inventorship.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sawyer (EP-0 419 266) in view of Velenyi (USPN 4,808,563).

The Sawyer reference discloses a process whereby a feedstock is hydrotreated in the presence of a hydrotreating catalyst under hydrotreating conditions wherein the hydrotreating catalyst comprises a non-noble Group VIII metal molybdate. See Page 4, lines 19-24. The reference discloses hydrotreating conditions equivalent to the range 288 C to 371 C, pressure in

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the range of 300 to 1200 psig, liquid hourly space velocity in the range of 0.5 to 4.0, and a hydrogen treat gas rate in the range of 200 to 2000 SCF/B. See page 5, lines 32-40. The reference discloses a process wherein hydrotreating removes sulfur and nitrogen containing compounds and solvent contaminants. See Page 3, lines 19-26 and 40-50. The reference discloses a process wherein the hydrotreating catalyst comprises at least one of molybdenum and tungsten and at least one of cobalt and nickel (non-noble Group VIII metals). See page 4, lines 19-27.

The reference does not disclose a process wherein at least a portion but less than all of the molybdenum is replaced by tungsten. The reference does not disclose a process wherein the bulk metal catalyst is represented by the formula  $(X)_b(Mo)_c(W)_d(O)_z$ . The reference does not disclose a process wherein X in the formula  $(X)_b(Mo)_c(W)_d(O)_z$  is a non-noble Group VIII metal, the molar ratio of  $b:(c + d)$  is 0.5/1 to 3/1, the molar ratio of  $c:d$  is  $>0.01/1$ , and  $z = [2b + 6(c+d)]/2$ ; wherein the molar ratio of  $b:(c + d)$  is 0.75/1 to 1.5/1; wherein the molar ratio of  $b:(c+d)$  is 0.75/1 to 1.25/1; wherein the molar ratio of  $c:d$  is 0.1/1; wherein the molar ratio of  $c:d$  is 1/10 to 10/1; wherein the molar ratio of  $c:d$  is 1/3 to 3/1. The reference does not disclose the full range of temperature from 200 to 400 C, pressure from 150 to 3500 psig, liquid hourly space velocity from 0.5 to 5 and hydrogen treat gas rate in the range of 100 to 5000 scf/B (17.8 to 890 m<sup>3</sup>/m<sup>3</sup>). The reference does not disclose a process wherein the hydrofining catalyst contains from 5 to 95 wt%, based on hydrofining catalyst, of a hydrotreating catalyst containing at least one Group VIB and at least one non-noble metal Group VIII metal on a refractory oxide support. The reference does not disclose a process wherein the bulk metal catalyst and the hydrotreating catalyst are in separate beds. The reference does not disclose a process wherein the hydrofining

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of the feedstock improves the color and stability of the feedstock. The reference does not disclose a process wherein X is Ni or Co.

The Velenyi reference discloses a bulk metal hydrotreating catalyst with the formula  $\text{Mo}_a\text{W}_b\text{M}_c\text{A}_d\text{O}_e$ .

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of Sawyer to utilize the bulk metal catalyst of Velenyi because both the Velenyi and the Sawyer catalysts are suitable and effective for hydrotreating. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein at least a portion but less than all of the molybdenum is replaced by tungsten because as transition metals molybdenum and tungsten have similar properties and because both are utilized in the bulk metal catalyst. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein the bulk metal catalyst is represented by the formula  $(\text{X})_b(\text{Mo})_c(\text{W})_d(\text{O})_z$  and wherein X in the formula  $(\text{X})_b(\text{Mo})_c(\text{W})_d(\text{O})_z$  is a non-noble Group VIII metal, the molar ratio of  $b:(c + d)$  is 0.5/1 to 3/1, the molar ratio of  $c:d$  is  $>0.01/1$ , and  $z = [2b + 6(c+d)]/2$ ; wherein the molar ratio of  $b:(c + d)$  is 0.75/1 to 1.5/1; wherein the molar ratio of  $b:(c+d)$  is 0.75/1 to 1.25/1; wherein the molar ratio of  $c:d$  is 0.1/1; wherein the molar ratio of  $c:d$  is 1/10 to 10/1; wherein the molar ratio of  $c:d$  is 1/3 to 3/1 because the Velenyi reference discloses the constituent components of the catalyst and since all constituent components are disclosed it would be appropriate to adjust them in any ratio effective for hydrotreating. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the full range of temperature from 200 to 400 C, pressure from 150 to 3500 psig, liquid hourly space velocity from 0.5 to 5 and hydrogen

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treat gas rate in the range of 100 to 5000 scf/B (17.8 to 890 m<sup>3</sup>/m<sup>3</sup>) because overlapping ranges are disclosed by Sawyer and it would be appropriate to adjust the ranges for effective hydrotreating. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein the hydrofining catalyst contains from 5 to 95 wt%, based on hydrofining catalyst, of a hydrotreating catalyst containing at least one Group VIB and at least one non-noble metal Group VIII metal on a refractory oxide support because both Sawyer and Velenyi disclose the constituent components of the catalyst and it would be appropriate to adjust the weight percentage in whatever way necessary for hydrotreating. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein the bulk metal catalyst and the hydrotreating catalyst are in separate beds because this allows a greater opportunity for impurity removal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein the hydrofining of the feedstock improves the color and stability of the feedstock because improved color and stability is result of impurity removal. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a process wherein X is Ni or Co because Ni and Co are disclosed as constituent components of the catalyst.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gosselink et al (USPN 5,112,472) and Johnson et al. (USPN 5,320,741). Both reference disclose hydrotreatment utilize Group VI and Group VIII metals.

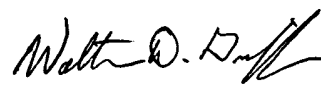
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Arnold, Jr. whose telephone number is 703-305-5308. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM; Fridays from 8:30 AM-5:00 PM with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

ja  
June 5, 2003

  
**Walter D. Griffin**  
**Primary Examiner**